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CHAPTER II

THE BEMBA DIET

Available Data.

262 A LIST of the chief Bemba foodstuffs is given at the end of this book (Appendix A). It will be seen that their environment provides them with a variety of foods—cereals, roots, pulses, green vegetables, fruit, honey, meat, fish, and salt, and they lack only one important constituent of our own dietary, namely, milk and all its products. But such a table of foodstuffs tells us very little about the diet itself. To study its composition we ●146 must know the quantities of each particular constituent the individual Bemba eats in an average day or year, and this information is not yet available. The records already published of the food eaten by sample families in different villages[1] were based on rough approximations, and on observations made during a few weeks only of the year—a serious drawback where the seasonal variations are so great. Since that date Mrs. Gore-Browne has calculated the average yearly supply of the staple food available for each individual by measuring the contents of a number of granaries at harvest-time and she has also estimated the probable average consumption of one or two other foods.[2] But these calculations refer to one area only and to a limited number of foodstuffs. The data is obviously insufficient on which to base accurate generalizations as to the composition of the Bemba diet. These pages will therefore be limited to a description of the salient features of the dietary as a whole. Some of these are characteristic of the feeding habits of primitive peoples in general and are of interest by way of broad comparison with our own; others are limited to this particular area, and even to the tribe concerned.

262 273 All Bemba individuals can be reckoned as eating, roughly speaking, the same type and quantity of food. Class distinctions practically do not exist in this respect. Chiefs certainly have a much more regular supply of food than commoners and drink very much more

[1] A. I. Richards and E. M. Widdowson, op. cit.

[2] This experiment covered 15 villages with a total population of 777 men, women, and children, and was made from July to January 1935–6. Report to the Diet Committee of N. Rhodesia, 1937 (unpublished).

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Other activities are also affected. There is little or no dancing in the hunger months, partly owing to the absence of beer.[1] Few journeys are planned, and the children tend to play listlessly. Usually more good-tempered than the average English baby, they whimper at the slightest provocation. I found it difficult to get informants to concentrate for more than short periods at this time of the year.

The physical effects of a seasonal shortage of food on the health of a people and the growth rate of their children has not yet been investigated, but from a sociological point of view there are other effects to be considered besides the lowering of energy due to actual under-feeding which the natives themselves recognize and describe (cf. p. 50). In a society in which people regularly expect to be hungry annually, and in which traditions and proverbs accustom them to expect such a period of privation, their whole attitude towards economic effort is affected. In some primitive tribes it is considered shameful for an individual or a whole community to go hungry.[2] It is something unexpected, and to be resisted with energy. Among the Bemba scarcity is within the ordinary run of experience, and accepted as such. This fact has a subtle but very powerful effect on their ideas of wealth and their incentives to work (cf. Chap. XIX).

Composition of the Diet.

The Bemba diet is in a sense a simple one since it is composed very largely of one cereal food—the finger millet already described. The bulk of each meal consists of a porridge made of this flour, and the subsidiary foods, meat or vegetable, are eaten with it in small quantities only (about half a pound of the latter to five pounds of the former). For their nutrition the Bemba depend almost entirely on the amount of millet they are able to get, and the seasonal variations from hunger to plenty consist in effect of the shortage or absence of this particular grain.[3]

[1] No ceremonies such as initiation rites or the founding of a village are carried out in the last moon of the rains, *Kutumpu* (March), probably for this reason. But it is also interesting that the people give ill health and bad luck as reasons for not holding ceremonies in this month. They say: 'March is an unlucky month. Look how many people fall ill at that moon.'

[2] Cf. Malinowski's account of the Trobriand islanders, who consider hunger shameful and give all their efforts to displaying food and producing it in excess. *Coral Gardens and their Magic*, 1935, vol. i, p. 227; *Argonauts of the W. Pacific*, 1922, p. 109.

[3] Dr. Widdowson calculates that the Bemba gets 75 per cent. of his calories

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•146 As a staple food, finger millet has a high nutritive value compared to other cereals used in this area. It is far superior to cassava in protein, fat, and mineral salts, and to the white millet of East Africa both in fat and minerals. Though inferior to maize in protein and fat, it is only very slightly so, and is again superior in minerals (iron, calcium, and phosphorus). On the other hand, as has been pointed out, the supply of millet as produced by the Bemba only lasts some nine months of the year, whereas the cassava roots remain in the garden beds throughout the year and are used a little at a time as wanted, so that people like the Bisa, who live on this crop, have a regular diet throughout the year. Sweet potatoes also can be eaten at most seasons, except during the rainy months. Millet has a further drawback in that it is used for beer as well as for porridge, and though the former evidently provides a valuable source of vitamin B contained in the germinating grain, yet it is an extravagant way of using the supplies, and the Bemba are in a worse position than peoples who grow a separate cereal for the purpose of brewing.

Their next most valuable foodstuffs are the pulses, ground-nuts, ground-beans, Kaffir beans, cow-peas, &c., commonly grown by most of these Bantu peoples. These are a valuable source of protein and fat, ground-nuts being particularly rich in the latter, and this adds to their importance in a diet in which fats of all kinds are very deficient. In fact, Trapnell suggests that the nutritive value of most of these simple cereal diets of Northern Rhodesia depends largely on the amount of the subsidiary pulses grown in addition to the main cereal crop.[1] In the case of the Bemba this supply of pulses seems to be far from adequate.[2] The store of dried beans and peas lasts only a few months of the year.

[222] For their animal protein the Bemba depend on game, fish, caterpillars, wood-lice, &c., obtained from the bush, but game is very scarce in this area, is only easily hunted at certain seasons

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from this carbohydrate food, and about 5 per cent. from fat, whereas we get 40–50 per cent. from carbohydrates and 30–40 per cent. from fat. Cf. op. cit. *Africa*, vol. ix, no. 2, 1936.

[1] Report to the Diet Committee of the N.R. Government, 1937.

[2] Mrs. Gore-Browne reports that in 15 villages visited from July to January 1936–7, no householders had any cow-peas left and only one any ground-nuts. In granaries I examined in a village in the same area in September 1933, 6 out of 14 householders had a few ground-nuts, beans, and dried potatoes. In the Kasama district in January 1934, 25 out of 37 householders had no store of pulses left at all.

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of the year, and in some districts is hardly obtainable at all. Of fifteen villages visited by Mrs. Gore-Brown in 1936, four had eaten no meat at all during the seven months under observation, although these communities were settled in reputedly good hunting country. In the remaining 11 villages such totals as 13, 5, 9, and 25 small duiker had been divided. In another village where the reckoning had been made for a period of a year 40 duiker had been killed.[1] Of the three villages in which the diets have been analysed (Appendix C), it will be seen that no animal protein of any kind was eaten during the two weeks of observation in the case of one: in another it was very low.

In the ordinary Bemba village a little fish is caught in the small rivers at certain months of the year when the waters are flooding the banks or are falling again, but fish cannot be reckoned as an important article of diet except among the peoples who live on the banks of big rivers such as the Chambesi. Caterpillars are obtainable everywhere during the wet season, and make a quite considerable contribution to the animal protein of this diet.

Of the other subsidiary food, green leaves, either cultivated or wild, which form the main source of vitamin C, are obtainable for six or seven months of the year (April to September), while fruits are limited to two months (October and November). The edible gourds and mushrooms eaten as subsidiary foods in the hunger months of the year have little nutritive value.

Salt is not easily obtained (cf. p. 55). When available, about a teaspoonful a day would be spared for cooking, but it is not uncommon to find households that have been some weeks without any salt at all, and which have not been able to make good this deficiency by eating meat.

As far as it is possible to speak of the composition of the diet as a whole, generalizations based on figures collected in three villages at different seasons of the year show that the average calorie intake is 1,706 per man value per day, i.e. just over half that which is considered adequate in England and America. The fat is only an eighth as much as is usually eaten on our mixed diets. The intakes of calcium and phosphorus compare very favourably with those in England and America. Salt is exceedingly deficient at all seasons of the year. While it is impossible, for want of further information, to make direct comparisons with English scales of diet, it is

[1] A duiker might be reckoned the size of a small goat.

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146 interesting to compare the minimum ration scales laid down by the Government for native employees in industrial undertakings, and the improvements on these latter scales worked out by such big mining companies as the Rhokana Corporation, to whom an increase in the annual output of work is of such importance as to justify the spending of large sums of money on better diet for the workers.

The comparisons given in the tables below are admittedly very rough ones, since Columns 2 and 3 give accurate weights of different foodstuffs and Column 1 approximations only, based on Mrs. Gore-Browne's granary measurements, but as regards the cereal food which forms the main part of each diet, there is not likely to be a serious inaccuracy as to the estimate for the daily intake of the village native, since the figure given (0·9 lb. a day), does not vary substantially from that obtained by the method of weighing in three villages in three different areas in another year (i.e. 9·7 lb.; cf. Appendix C.). The figures for the calorie value of the village diet were obtained from the latter data and the average figure for an 8-months period.

Foodstuff	*Bemba village diet*	*Government scale*	*Rhokana Corp.: proposed scale*
Cereal[1] (Maize or millet)	12·8 oz./day	24 oz./day	16 oz./day
Wheat bread	..	..	6·0 oz./day
Pulses (various)	0·016 oz./day	4·0 oz./day	4·5 ,,
Ground-nuts	0·016 ,,	1·0 ,,	1·0 ,,
Green vegetables	Not estimated	5·0 ,,	6·7 ,,
Meat	0·25 oz./day	4·6 ,,	12·0 ,,
Fat	..	0·5 ,,	0·7 ,,
Salt	Occasional	0·5 ,,	0·5 ,,
Beer	8 oz./day	..	20·0 ,,
Total calories per day	1,706	4,313	3,663

(Calorie value of typical European or American diet = 3,000)

[1] It is interesting to note that the Rhokana Corporation has been attempting to introduce an improved diet by reducing the number of calories obtained from meal and increasing those obtained from meat, even at a cost of reducing the total number of calories, i.e. Old scale: Total calories 4,313·7 with 2,544 from meal and 222 from meat. New Scale: Total calories 3,663 with 1,696 from meal and 425 from meat. The management believed that the increased output of work obtained from this diet would repay an increased annual expenditure of £7,526 on the new diet. (Figures from Report to the Diet Committee of the Government, 1937.) The results of this experiment are not yet published.

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262 is practically non-obtainable, and gourds and occasional maize-cobs are often the only available foods. Thus the diet changes completely in composition from one season to another—a characteristic feature of primitive societies, of which the effects have not yet been investigated. Such essential constituents as are provided by the green vegetables, fruit, meat, and fish, given in the Appendix I, are only available for short periods of the year.

[146] To conclude, it can be said that most constituents considered essential to a balanced dietary are present in the Bemba environment, with the important exceptions of sufficient animal protein, fat, and salt. There is an absolute shortage of millet reckoned either by the figures of the amount available annually or from the obvious seasonal scarcity, and the natives' reliance on this one staple makes this lack a dangerous one. The most valuable accessary foods such as the pulses only last part of the year, and the supply of green vegetables is limited to a few months. Milk is never obtainable. Except in the case of meat and milk these deficiencies appear to be due to difficulties of production, storing, and exchange rather than to any particular environmental defects.

Physique and Energy.

142 It is impossible to describe the physique and output of energy of the natives living on this diet, as no medical examination of the people for this purpose has been made. Certain superficial observations may, however, be included for general interest.

Compared to the surrounding tribes the Bemba are tall and muscular, but it is exceedingly rare to find any member of the [145] tribe who is fat.[1] Girls between 16 and 18 are often quite plump, but they soon lose the extra fat and take on the angular figures of their mothers. Members of the royal family tend to be taller than the commoners, but it is not usual even to find a chief who is fat as compared with photographs of kings and notable personages among [856] the Zulu and other pastoral tribes. Babies are usually plump and well covered before they are weaned, but after that their arms and legs become skinny and their abdomens bulge in the manner common to so many African children.

[141] [1] It has been found recently that the average weight of 589 adult males *accepted* for mine work at Nkana was 127·65 lb. (9 stone 1 lb. 10 oz.), and that 83 per cent. weighed under 140 lb. (10 stone). This lightness in weight as compared to the European averages may, of course, be a racial characteristic.

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ghost is very strong. In the case of a dangerous animal like a leopard or a lion special ceremonies are performed to prevent the return of its spirit. In the old days the killing of an ox, I was told, was accompanied by the words, 'Kampinda (a name for the High God) who gave this beast, now go out of it. Go and settle in that one', pointing to another animal. I never heard this said, but to this day the Nkolemambwe, the hereditary official responsible for killing most of the beasts slaughtered at the Paramount chief's court in connexion with various rites, describes himself as being 'fierce' (*umukali*) on this account, and as doing specially dangerous work for the community requiring subsequent purification. I have heard a native say that it is bad to kill a dog because its spirit could return. 'White men are cruel the way they shoot sick dogs. It is better to tie them up in the bush and walk quickly away and let them die.' Children are sometimes afraid to kill a chicken. One said, 'It is a frightening thing to watch the breath flutter away'.[1] This attitude towards the killing of domestic animals is interesting in an agricultural people in which the ritual attitude towards cattle has not been formalized in different institutions and religious ceremonies as it has among the pastoral Bantu. It amounts to a reluctance to treat goats and sheep merely as stock to be bred and killed, combined in this case with a lack of scientific knowledge of how to do so.

Conclusion.

To summarize the Bemba views on food it must be admitted that they grade their different victuals according to fairly crude criteria, such as their lasting power, and ease of swallowing. Also habits developed in early infancy have made them used to experiencing particular sensations after eating, such as the feeling of fullness after a meal of *ubwali*. Hence other types of dishes have ceased to seem to them to be 'satisfying'. On the other hand, most of their prejudices appear to be extraordinarily sound in the particular environment in which they live. Their preference for millet flour as against cassava meal is an extremely sensible one as the chart of comparative values of finger millet, cassava, and maize given

[1] *Pakuloleshyo muntu apo umweo uleputuka cakutina.* This fear seems to be combined with a definite desire to watch pain inflicted. Most natives consider it the treat of treats to see a sacrificial animal killed, and I have always noticed that children swarm to watch a goat killed and rather enjoy a long-drawn-out death.

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on p. 409, Table B, shows. It will be seen that the millet has a protein value of 33 as against 7 for cassava and a much higher proportion of fat, thus making the former a much more suitable cereal in an area where animal and vegetable fats are so short.[1] Their scorn of maize is not, however, justified from a nutritional point of view, since it has a higher protein and fat content than the favourite millet. Habit and the additional difficulties which the cooking of maize involves probably influence them in this prejudice. The general order in which they grade their accessory foods, i.e. describing maize as giving more strength than gourds, legumes than green or dried leaf relishes or mushrooms also seem to correspond roughly to the nutritive values of these foodstuffs as shown in the Appendix B, as also their statement that ground-nut sauce, the most important source of fat in this diet, gives the food 'strength' (*amaka*). Cravings for salt and meat would probably be prophesied from a descriptive account of the deficiencies of the diet.

They do not make use of eggs and chickens, as they could do, but otherwise there are few of those ritual restrictions which limit the diet of a number of primitive tribes. The Bemba have also clearly a realistic outlook on the importance of food in relation to health and power of work. It remains to be seen whether the urban natives, under the stress of new economic and social ambitions lose this shrewd empirical sense.

[1] Compared to the Bangweolu area where the cassava-eating peoples have an ample supply of fish and hence a more adequate amount of fat in their diet.

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dry as if there wasn't any saliva in them'.[1] It is very important to natives to get the right proportion of relish to porridge. Every one wants to get as much relish as possible, and here the rules of procedure are fixed. An old man may tear off a lump of *ubwali* and make it into a hollow spoon. This he will dip into the liquid relish and then pick up as much relish as possible (*ukuleme nkondwa*). The child, or inferior, may only just dip the porridge into the relish to moisten it (*ukutumpika*), and thus the proportion of vegetable varies very much according to age. A young man will not dare *ukuleme nkondwa* until he is given the permission by his father, said to be granted when the boy is able to do a full day's work in the gardens. A girl should wait the invitation of her mother before trying to take an adult portion of relish, and on the few occasions when a wife eats with her husband, in the privacy of their hut at night, she is supposed merely to dip her porridge in the stew like a child, until she reaches middle or old age when, among the Bemba, all sex disabilities seem to disappear.

Bemba eating customs can therefore be said to differ considerably from our own, both as regards the rhythm of meals, the regularity of daily intake, and the serving and rate of consumption, but in each case the manner of eating is just as precisely defined by cultural rule and related as strictly to the general economic system and social grouping of the people concerned. Even the proportion of liquid to solid, or relish to porridge, is prescribed by etiquette.

Beer Drinking.

Bemba beer (*ubwalua*) is one of their most important foodstuffs. It is made from the staple cereal itself.[2] It is a valuable source of vitamin B in which the diet is otherwise deficient.[3] On the day when it is drunk very few natives eat any other form of food, and some individuals, mostly chiefs, subsist on it entirely from day to day. But *ubwalua* is far more than a mere food. It is the people's only kind of entertainment, the chief break in the monotony of

[1] Information collected by Mrs. Gore-Browne.

[2] The Bantu peoples make beer from a number of different sources according to their environment, eleusine, Kaffir-corn, maize, cassava, bananas, honey, and, in the Congo, wine from palms and sugar-cane. The Bemba preference for millet beer is shared by a number of people such as the Bisa (of the swamps), or the Venda of the Transvaal (H. Stayt, *The Bavenda*, p. 35) who grow the cereal specially for the purpose.

[3] Kaffir beer is included as part of the rations issued to mine-workers on the Rand scale chiefly for this reason.

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TABLE B

Composition of Bemba Foods

(*Kindly prepared by* DR. E. M. WIDDOWSON)

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	Protein	*Fat*	*Carbo-hydrate*	*Cal-cium*	*Phos-phorus*	*Iron*	*Source of figures*
	gm.	gm.	gm. (per 100 gm.)	gm.	gm.	mgm.	
Beans, dried	23	1·8	60	0·15	0·46	10·5	Sherman, 1937.
Beans, haricot	21	0	46	0·18	0·31	6·7	McCance, Widdowson, and Shackleton, 1936.
Beer (per pint)	4	0·6	12	0·23	0·17	15·5	Analysis of Bemba specimen. Also contains 27 grams alcohol.
Caterpillars (dried)	65	5·0	0	0·16	0·77	7·3	Analysis of Bemba specimen.
Chicken (including waste)	13	4·8	0	0·01	0·13	1·0	McCance and Shipp, 1933
Cikanda	1	0	9	0·14	0·02	1·2	As spring onion. McCance, Widdowson, and Shackleton, 1936.
Cow-peas (dried)	21	1·4	61	0·10	0·46	7·9	Sherman, 1937.
Cucumber	1	0	2	0·02	0·02	0·3	McCance, Widdowson, and Shackleton, 1936.
Fish, fresh	16	5·9	0	0·06	0·20	1·0	McCance and Shipp, 1933.
Fish, dried	32	11·8	0	0·12	0·40	2·0	Calculated from fresh fish.
Flour, maize	8	6·7	72	Trace	0·41	2·2	Analysis of Bemba specimen.
Flour, millet	7	1·4	75	0·32	0·32	2·4	„ „
Flour, cassava	2	0·3	87	0·05	0·06	1·2	„ „
Gourds, fresh	Trace	0	1	0·01	0·01	0·2	As marrow. McCance, Widdowson, and Shackleton, 1936.
Ground-nuts	28	49·0	9	0·06	0·37	2·0	As peanuts. McCance, Widdowson, and Shackleton, 1936.
Locusts	8	7·9	0	0·16	0·77	7·3	Orr and Gilks for protein, fat, and carbohydrate. Caterpillar figures for calcium, phosphorus, and iron.
Leaves, fresh	3	0	1	0·14	0·04	2·2	Calculated from dried leaves.
Leaves, dried	26	0	11	1·44	0·37	22·1	Analysis of Bemba specimen.
Meat, stewed	15	4·4	0	Trace	0·11	2·5	McCance and Shipp, 1933. ¼ values to allow for gravy.
Meat, venison (roast)	30	6·6	0	0·03	0·29	7·8	McCance and Shipp, 1933.
Mpundu fruit	1	0	7	0·02	0·02	0·4	As apricot. McCance, Widdowson, and Shackleton, 1936.
Mpwa fruit	1	0	3	0·01	0·01	0·4	As egg-plant. McCance, Widdowson, and Shackleton, 1936.
Mushrooms, fresh	2	0	0	Trace	0·14	1·0	McCance, Widdowson, and Shackleton, 1936.
Peas, dried	22	0	50	0·06	0·30	4·7	„ „

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	Protein	Fat	Carbo-hydrate	Cal-cium	Phos-phorus	Iron	Source of figures
	gm.	gm.	gm. (per 100 gm.)	gm.	gm.	mgm.	
Potatoes, sweet (including waste)	1	0	18	0·02	0·04	0·5	McCance, Widdowson, and Shackleton, 1936.
Potatoes, *Mumbu* or Livingstone	2	0	3	0·03	0·03	0·4	As Jerusalem artichokes. McCance, Widdowson, and Shackleton, 1936.
Pumpkin, fresh (including waste)	1	0	3	0·03	0·02	0·3	McCance, Widdowson, and Shackleton, 1936.
Tripe	18	3·0	0	0·13	0·13	1·6	McCance and Shipp, 1933.

Local (Cibwa) Salt from Mpika
(analysed by McCance and Widdowson)

Na	K	Ca	Mg	Fe	Cl	SO_4	Cu	Mn
		(Gm. per 100 gm.)					(Mgm. per 100 gm.)	
32·50	2·405	0·313	0·038	0·045	45·60	21·30	0·25	0·70

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TABLE C

Chemical Composition of the Diet of 3 Villages of the Bemba Tribe. Results expressed per Man Value per Day

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Village	*Family*	*Total protein grams per day*	*Animal protein grams per day*	*Fat grams per day*	*Carbohydrate grams per day*	*Calories per day*	*Calcium grams per day*	*Phosphorus grams per day*	*Iron milligrams per day*
KASAKA:	A	67·0	16·9	16·7	426	2,293	1·96	2·20	20·7
(Hot weather season—August, September, October)	B	90·0	22·4	21·8	591	3,164	2·56	2·92	28·1
	C	52·0	14·3	14·4	304	1,685	1·43	1·62	15·8
	D	50·8	20·3	13·7	270	1,440	0·97	1·31	15·4
	E	57·6	21·1	19·3	314	1,725	1·27	1·55	17·2
Mean		63·5	19·0	17·2	381	2,061	1·64	1·92	19·4
KAMPAMBA:	A	32·0	0	16·7	160	941	0·76	1·33	10·6
(Wet weather season—November, December, January)	B	64·6	0	17·8	506	2,510	2·20	3·00	22·6
	C	52·0	0	11·6	455	2,181	1·83	2·14	17·9
	D	38·5	0	9·3	316	1,544	1·38	1·77	13·6
	E	39·0	0	13·7	296	1,508	1·29	1·68	12·8
	F	61·0	0	15·0	521	2,642	2·20	2·80	20·9
Mean		47·9	0	14·0	376	1,888	1·61	2·12	16·4
KUNGU:	A	18·6	0	2·2	144	686	0·79	0·69	7·6
(Hunger months—February, March)	B	35·0	8·4	5·8	194	993	1·20	1·11	12·7
	C	11·8	0	0·4	57	286	0·60	0·37	7·0
	D	26·6	7·9	2·1	220	1,029	0·78	0·88	9·4
	E	37·0	0	5·4	320	1,512	1·52	1·46	14·2
	F	10·9	0·6	1·5	80	388	0·46	0·45	5·3
Mean		23·3	2·8	2·9	169	816	0·89	0·83	9·4
Average results for the 3 villages, representing the diet of each village over 8 months of the year		50·0	10·2	13·0	327	1,706	1·45	1·70	16·1
Chemical composition of a typical European or American diet		100·0	50·0	100·0	400	3,000	0·68	1·32	15·0

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